

HOW TO CONDUCT A FOG TEST

PHANTOM FILM METHOD

1. Load a cassette with the fastest film routinely used in the darkroom. Expose the film-cassette using an appropriate phantom, such as the NEXT adult chest phantom. The facility's clinical technique may be adequate for this test.

NOTE: The radiographic technique used should produce a background film density between 1.0 and 1.8 in order to be sufficiently sensitive to subsequent levels of fog.

2. Use the area in the darkroom that is typically used to handle films in the typical day-to-day operations.
3. Quickly remote the film from the cassette and insert the film into the fog folder so that the short end of the folder with the words "FOG" are on top. The top (short) edge of the fog folder should cut across a region of the film which would otherwise have uniform film density. Also, be certain that the top edge of the fog folder is laying flat against the film.

NOTE: If the film is a single-emulsion type, you should verify that the emulsion is facing upward.

4. Expose the film/fog folder to the darkroom environment for two minutes. Be careful that you are not shading the film from sources of fog during this time.
5. Remove the film from the folder and quickly feed into the automatic processor.
6. Inspect the developed film for the presence of a border and the words "FOG". It is recommended that you use a viewbox if the presence of a border is not obvious.
7. If you cannot see a border nor the words "FOG" on the film, then there is no observable fog in the darkroom.
8. If you see a distinct border and the word "FOG" on the film, then:
 - a. Select a region along the fog edge near the center of the film that is a region of constant density. You do not want to measure fog levels near features on the film such as test tool images or spinal features such as on the abdomen and pediatric phantoms.
 - b. Measure the optical densities on either side of the "FOG" border as near the border as possible. If permissible, you may cut into the film in order to extend the reach of your densitometer.

REMINDER: The optical density of the unfogged area should be between 1.0 and 1.8 OD.

- c. The difference between the higher optical density (film density WITH fog) and the lower optical density (film density WITHOUT fog) is the NET darkroom fog level.

STEPWEDGE METHOD

1. Load a cassette (preferable 8"x10") with the fastest film routinely processed in the darkroom.
2. Position the cassette on the tabletop at a 40-inch target-to-film distance.
3. Place an aluminum stepwedge on the center of the cassette with the long dimension of the wedge along the cassette's long axis.
4. Collimate the light field to the approximate size of the cassette.
5. Expose the cassette using 70 kVp and 5 mAx.
6. Proceed to step 2 under "Phantom Film Method."

REDUCING DARKROOM FOG

Darkroom fog can be attributed to improper bulb wattage, close safelight positioning, too many safelights, wrong safelight filter for the film processed, aged or damaged safelights, other devices in the room which produce light, or any combination of these factors.